227859

COMMONWEALTH OF AUSTRALIA.

PATENT SPECIFICATION

38, 208/58.

Complete Specification Lodged ..... 28th May, 1958.
Application Lodged (No. 38, 208/58) ..... 28th May, 1958.

Applicants ..... Keenan Brothers Limited and John Kinsella.

Actual Inventor ..... John Kinsella.

Convention Application.
(Great Britain, 31st May, 1957).

Complete Specification Published ..... 27th November, 1958.
Complete Specification Accepted ..... 22nd April, 1960.
Classification 95.5.
International Classification A 01 b.
Drawing attached.

COMPLETE SPECIFICATION.

"AN ATTACHMENT FOR AGRICULTURAL AND INDUSTRIAL TRACTORS".

The following statement is a full description of this invention, including the best method of performing it known to us:-

The present invention relates to an attachment for agricultural and industrial tractors and has for its object to provide a tool frame for connection to the front end of a tractor which will enable all kinds of tools such as ploughs, hoes, shovels, sweeper, dozer blades to be carried and operated under controlled conditions at the front of a tractor.

According to the present invention there is provided an attachment for agricultural and industrial tractors comprising a mounting frame adapted to be fitted to the front of a tractor, a tool frame adapted at its inner end to be hinged to the mounting frame and a hydraulic jack or jacks connected between the mounting frame and the tool frame for swining the tool frame up and down, characterised in that the tool frame comprises a front transverse member provided at each end with a forwardly directed pivoted link for receiving one end of an implement or tool supported between the forward ends of said links, and a hydraulic jack connected

between one of the links and the front transverse member for imparting lateral movement to the links and the implement or tool carried thereby.

To enable the invention to be clearly understood embodiments thereof will now be described by way of example with reference to the accompanying drawings wherein:-

Figure 1 is a side view showing one form of tool frame of the invention connected to the front of a tractor by way of a mounting frame.

Figure 2 is a plan view of the tool frame drawn to a larger scale.

According to one embodiment illustrated by Figures 1 and 2 a mounting fram 1, similar to that described in co-pending Patent Application No. 38,207/58 is provided which is adapted to be secured to the front end of a tractor 2. This mounting frame 1 is provided at each side with upper and lower pivots 3 and 4 for receiving the inner ends 5 of the side limbs 6 of a tool fram 7 which can thus be pivoted to the mounting fram 1 either at a high level (as shown) or at a low level and this tool frame is adapted to be swung upwardly and downwardly by one or more hydraulic jacks 8 which is or are pivotally interconnected between lugs 9 on the tool frame 7 and the mounting fram 1, the jack or jacks 8 being connected to the upper or lower pivots 3 or 4 on the mounting frame 1 which are not occupied by the tool frame. These jacks 8 may be of the single or double acting type and are controlled by the hydraulic transmission of the tractor. Preferably, a hydraulic jack is provided at each side of the tool frame 7 as shown.

The tool frame 7 is designed e.g. by providing it with cross bracing 10, to have rigidity and torsional stiffness so that any tendency of one jack 8 to move more than the other due to unevenness of load is avoided.

The tool frame comprises a front transverse member 7a which is provided at each end with a forwardly directed pivoted link 11 and the front ends of the two links thus provided are fitted with bearing attachments 12 which may rotate to accommodate the movement of the links 11 and which are adapted to receive pick-up pins of various tools (not shown).

The two swing links 11 may be constrained from angular motion by a diagonal type tie rod (not shown), or alternatively, a hydraulic jack 13 may be fitted in a diagonal position between one of the links 11 and the front cross member 7a of the tool frame. The linear motion of the hydraulic jack will cause both links 11 to swing, the tool which the links carry forming a connecting member between the links so that they are swung in unison. This latter jack 13 may also be controlled from the hydraulic transmission of the tractor.

This angular motion imparts lateral or sideways movement to any tool fitted to the front or outer ends of the links 11 which is a very valuable

and desirable feature in the case of row crop work where rapid and precise control over the lateral position of the tools is then available remotely to the tractor driver.

It will be appreciated that according to whether the tool frame is connected to the mounting frame at a high or low that the hydraulic jack 8 will be positioned below or above the tool frame.

The tool frame may be fitted with a manure fork or a rest fork or any other suitable tool.

The attachement of this invention may advantageously be employed for cleaning out animal houses because the attachment is very compact and a load can be raised to a conveniently low height of say about thirty inches which is sufficient for effecting the raising and subsequent dumping of the refuse in a heap. Likewise, the attachment may be used for supporting and manipulating a ballast shovel.

For tillage and cultivation purposes conventional tools and tool bars may be fitted to the tool frame and the provision of the hydraulic steering, provided by said swinging links 11 of the first embodiment, may be taken advantage of where necessary. In particular, in the case of moulding or ridging tools only limited steerage is available when the tractor wheels run in the drills made by the moulding tools themselves. The hydraulic steerage of the tools by means of said swingable links 11 gives the necessary control.

If desired, the tool frame may be fitted with an automatic depth control for hoes and tools of a similar kind. Such a control (not shown) may comprise a wheel or slipper feeler which will move over the ground in advance of the tool in use. The slipper or wheel is carried by an arm pivotally mounted on the tool bar or the front of the tool frame and the movement of the feeler relative to the tool frame is transferred by a suitable linkage to a hydraulic valve controlling the oil supply to the main jacks 8 or 19. The hydraulic valve will, for this purpose, be mounted at the front end of the tractor and will be operable by the driver in the normal manner. Should a cultivating tool go too deep with respect to the ground surface, movement of the feeler will operate the hydraulic valve in such a manner as to cause the tool frame to lift. Insufficient depth of tool in the ground will cause the opposite movement of the tool frame. The required depth adjustment can be provided and manual override be available to the operator.

The claims defining the invention are as follows:-

1. An attachment for agricultural and industrial tractors comprising a mounting frame adapted to be fitted to the front of a tractor, a tool frame adapted at its inner end to be hinged to the mounting frame

and a hydraulic jack or jacks connected between the mounting frame and the tool frame for swinging the tool frame up and down, characterised in that the tool frame comprises a front transverse member provided at each end with a forwardly directed pivoted link for receiving one end of an implement or tool supported between the forward ends of said links, and a hydraulic jack connected between one of the links and the front transverse member for imparting lateral movement to the links and the implement or tool carried thereby. (31st May, 1957).

2. An attachment according to Claim 1, wherein the mounting frame is provided with upper and lower pivot attachments to enable the tool frame to pivot at different levels or heights, the hydraulic jack for swinging the tool frame being fitted between a pivot not engaged by the tool frame and a part of the latter. (31st May, 1957).

3. An attachment for agricultural and industrial tractors constructed substantially as hereinbefore described with reference to and as illustrated by the accompanying drawings. (31st May, 1957).

EDWD. WATERS & SONS,
Patent Attorneys for Applicants..

****

References:

Serial No.	Application No.	Classification.
158,602	17,719/53	95.5; 30.4
200,161	868/54	05.5; 84.5; 32.7
151,112	3006/51	84.35; 95.5.

Printed for the Government of the Commonwealth by
A.J. Arthur, Commonwealth Government Printer, Canberra.

[X] COPY HEREWITH OR OBTAIN FROM ☐ LIBRARY ☐ DIV.	[X] ALL PAGES [X] SPECIFICATIONS [X] DRAWINGS	☐ APPLICATION SERIAL NO. [X] PATENT NUMBER 227859	Cl	SUB. DATE 1960
NUMBER COPIES 2	COUNTRY (if foreign) AUSTRALIA	SPECIAL INSTRUCTIONS		

TITLE KEENAN PATENT. ATTACHMENT FOR AGRICULTURAL AND INDUSTRIAL TRACTORS.

VOL.	NO.	DATE 1960 APR 22	PAGES
ASS'T EXAMINER Blackmer	NOTES 172-276 AND 447		DATE ORDERED 1963 JAN. 31
DIVISION 1	ROOM NO. 5719	PRIMARY EXAMINER (Signature)	

FORM PO-230 (4-22-61)
USCOMM-DC

PHOTOCOPY ORDER AND CHARGE

U.S. DEPARTMENT OF COMMERCE PATENT OFFICE

Orig. CY: Cl 172 Sub. 810
Other CYs or Pgs: Cl_____Subs_____
Cl._____Sub(s)_____

11-1958 Foreign 227857

227.859

Fig. 1.

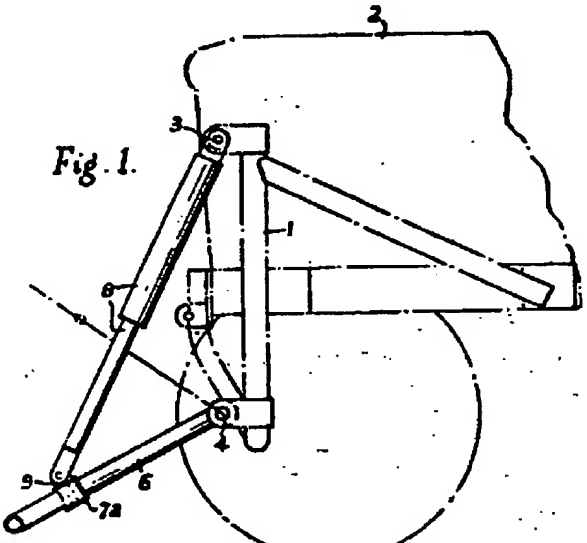
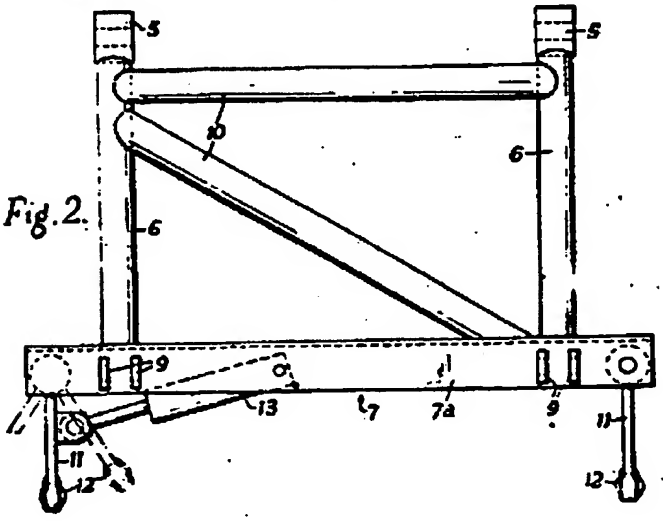


Fig. 2.



This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.
As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.